

## REMARKS

Reconsideration is respectfully requested.

By this Amendment, Claim 44 has been amended to change dependency to new Claim 57, drawn to a laser structure. New Claims 45-67 have been added to more specifically claim the subject matter considered by the inventor to be his invention.

New Claims 45 to 68 submitted herewith separate the claims into two sets of claims, each set depending either on independent Claims 45 or 57. Claims 44-56 are drawn to a method of reducing power fluctuations in the output of a distributed feedback laser structure, and Claims 57-68 are drawn to a distributed feedback laser structure with reduced power fluctuation respectively. It is respectfully submitted that the separation into two independent claim sets, one drawn to the method and one to the device, now facilitates the pointing out and distinctly claiming of the subject matter regarded by the applicant as the invention.

Claim 45 provides, *inter alia*, the steps of inducing a saturable absorption grating in the optical path of the first laser output utilizing a portion of the amplified first laser output, and utilizing phase-discriminating properties of the induced saturable absorption grating to reduce fluctuations in the output of the distributed feedback laser structure. We respectfully submit that new claim 45 and its dependent claims are complete and do not contain a gap between steps.

New Claim 57 defines, *inter alia*, a saturable absorption element, and an optical feedback element arranged in use to direct a portion of the amplified first laser output to the saturable absorption element, in a manner such that a saturable absorption grating is induced in the saturable absorption element, whereby phase-discriminating properties of the induced saturable absorption grating are utilized, in use, to reduce power fluctuation in the output of the distributed feedback laser structure. We respectfully submit that new claim 57 and its dependent claims are complete

and do not contain a gap between elements. The phase-discrimination feature is disclosed in the last paragraph of page 5 of the specification. Thus, no new subject matter has been added in the new claims. It is respectfully submitted that the new Claims 45-68 meet the requirements of 35 USC § 112, second paragraph, and accordingly, consideration of new Claims 45 to 68 with respect to the previous rejections under 35 USC § 112 is respectfully requested.

**The Claim rejection under 35 USC § 102 is improper**

Claims 22 to 43 have been rejected being anticipated by Ventrudo et al. (U.S. Pat. No. 5,485,481). It is respectfully submitted that new claims 45 and 57 are not anticipated by Ventrudo et al. More particularly, Claim 45 comprises the step of inducing a saturable absorption grating in the optical path of the first laser output utilizing a portion of the amplified first laser output.

In contradistinction, Ventrudo et al., with reference to Figure 2 thereof, illustrate a permanent, pre-fabricated Bragg grating 34 coupled to diode laser 26, which will reflect, stabilize and reduce the output power of the laser beam (column 5, lines 1 to 6). In column 3, lines 41 to 53 it is disclosed that the fiber grating 34 is produced by etching using lithography techniques, or by exposing the fiber 32 to a pattern of periodic intensity variation of high fluence ultraviolet light, i.e. from an external light source. Thus, there is no anticipation whatsoever of inducing a saturable absorption grating, i.e., a dynamic grating, in the optical path of the first laser output utilizing a portion of the amplified first laser output, i.e., a feedback arrangement, as now claimed in new Claim 45. Furthermore, there is no incentive given to a person skilled in the art to modify Ventrudo et al. to achieve the method now recited in Claim 45.

The invention provides the advantage of “customized” dynamic saturable absorption gratings for reducing power fluctuation in distributed feedback laser structures, as opposed to the permanent, pre-fabricated Bragg gratings disclosed in the prior art Ventrudo et al. device.

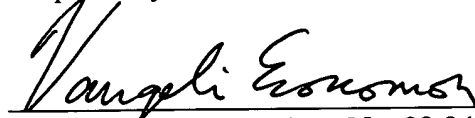
New Claim 57 includes a saturable absorption element and an optical feedback element arranged, in use, to direct a portion of the amplified first laser output to the saturable absorption element in a manner such that a saturable absorption grating is induced in the saturable absorption element, whereby phase-discriminating properties of the induced saturable absorption grating are utilized, in use, to reduce fluctuation in the output of the distributed feedback laser structure.

As submitted above, in the fiber system disclosed in Ventrudo et al., the Bragg grating 34 is a permanent grating produced by either etching or exposure to high fluence ultraviolet light from an external source. The fiber system does not contain an optical feedback element as defined in new Claim 57. Furthermore, due to the permanent nature of the grating 34 disclosed in Ventrudo et al., there is no incentive given to a skilled person to arrive at a distributed feedback laser structure as now claimed in new Claim 57, i.e., comprising an optical feedback element as defined, for directing a portion of the amplified laser output in a manner such that a saturable absorption grating is induced.

It is therefore respectfully submitted that new Claims 45 and 57, and their dependent claims are novel and inventive, and reconsideration of the claim rejection under 35 USC § 102 of Claim 44 and new consideration in view of the remarks above are respectfully requested, and an indication of allowable subject matter is earnestly solicited.

September 18, 2002

Respectfully submitted,



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**MARKED-UP VERSION OF CLAIM 44**

44. (Amended) A method as claimed in claim [42] 46, wherein the saturable absorption [region] grating is provided at one end of the signal amplification region and is in the form of a planar waveguide.